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ABSTRACT

A number of premises undergird the emerging relationships between education and work. The first nine suppositions suggest more powerful ways to conceptualize the substantive elements of schooling, emphasizing curriculum, instruction, and counseling and guidance. The final three focus on the organizational management aspects of education and work linkages. Effective practices for several principles are documented and described in the literature: integration-focused initiatives; practices ensuring active partnership of parents and role models; practices embracing the principle of continuous, functional context learning; practices enhancing economic and work concepts related to the global marketplace and addressing issues of equity and diversity on the domestic scene; strategies aimed at improving school-to-work transitions; and practices helping students better understand learning-at-work expectations. Practices have been implemented that illustrate the organizational and management premises of teacher use of research-based knowledge, effective patterns of collaborative leadership, and comprehensive assessment strategies. Any major educational redesign effort should include minimally these three organizational and curricular arrangements: provisions for curricular integrations, experiential learning, and formal and direct linkage of high school settings with both post-school education and work environments. (Contains 10 references.) (YLB)

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IN EDUCATION & WORK

Designing Effective Education-Work Linkages

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Sincerely,

L. Allen Phelps

L. Allen Phelps, Director
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Designing Effective Education-Work Linkages

L. Allen Phelps

Over the past decade much of the rationale for educational reform has been predicated on the notion that America's current and future citizens require a different and more rigorous education in order for the nation's economy to prosper. In setting the National Goals for Education, the President and the Governors noted clearly the importance of every American "possessing the knowledge and skill necessary to compete in a global economy. . ." (America 2000, 1991, April, [illegible]) by the year 2000. While the links between economic development and educational attainment are often obscured by contrasting philosophies about the purpose and aims of education, the urgency for building a more rational coherence between schooling and the world of work has recently been supported by policymakers, educators, business leaders, and parents at all levels of the education enterprise.

The rationale for strengthening the education and work linkage is even stronger if one takes a broad view of "work". If "work" is defined as productive and meaningful human endeavor, one can envision activities which have social, personal, community, as well as economic returns. "Education for work", then, emphasizes preparation for the work of families and family life, work in service and religious organizations, volunteer work, the work of citizens, as well as work in the traditional context of employment and economic productivity. The presence of formal connections among these various life roles continues to be widely debated. However, each is regarded as an important element in the preparation of citizen-workers for the 21st century. This broader, nontraditional definition of work provides new ground upon which to evaluate the various forms of contribution that sustain a democracy as well as a free market economy.

Further, using non-school learning experiences to enhance achievement and motivation has been recommended by a number of cognitive psychologists (Resnick, 1987; Raizen, 1990). Newmann (1991, February) argues that achievement becomes authentic when the processes of producing knowledge in specific domains are discovered by students through experiential rather than didactic learning activities. These notions suggest that effective education should have closer links to the realities of developing and using knowledge in the real world.

Some Principles Undergirding the Linking of Education and Work

The staff of the Center on Education and Work recently developed a set of premises which undergird the emerging relationships between education and work, broadly defined to include community and family concerns. The following twelve suppositions can be taken as broadly defined indicators of effective practice and policy for linking education and work.

1. Effective education for and about work requires the integration and application of knowledge and skills from multiple disciplines. The mutual interdependence of academic/general and vocational/specialized knowledge and skills must be nurtured and understood more fully.
2. Work places and places of education should be restructured so they include learning which is continuous and workplace focused.
3. Education for work is recurrent and engages individuals in life-long learning. Learning at work, at home, and in community settings is as important as learning in school -- and all must be effectively integrated. Policies and programs must seek to minimize the discontinuities of learning in school, community, family, and work settings.
4. Participation in comprehensive career development programs is essential for assuring appropriate, equitable employment and educational outcomes for all youth and adults.
5. Families, peers, counselors, and teachers must be active partners in shaping the work and career-related identities and expectations of youth and adults.
6. Work occurs in all aspects of life, including families. The "work of families" to resolve dilemmas and challenges is vitally important to the quality of family and work life.
7. Students, educators, and employers must be collectively prepared to live and work productively in a pluralistic, diverse society.
8. Individuals need smooth transitions from school to work and from work to further education and training opportunities.
9. Learners with special circumstances surrounding their education and employability must receive individualized and appropriate services

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which maximize the attainment of equitable education and work outcomes. Early intervention and prevention strategies must receive a high priority on the agenda for improving education for work for special students.

10. Research and practice must be more fully and effectively integrated in the process of creating new knowledge (including alternative approaches to the construction of knowledge) and in the conduct of professional practice.

11. Educational leaders at all levels must create vision and facilitate ownership in new initiatives through the meaningful participation of stakeholders.

12. Continuous on-going evaluation and assessment functions are the hallmark of high quality education for work programs. The continuous improvement of program quality and equitable outcomes is driven by outcome-focused assessment.

Suppositions 1-9 suggest more powerful ways to conceptualize the substantive elements of schooling, emphasizing curriculum, instruction, and counseling and guidance. Tenets 10-12 focus more specifically on the organizational management aspects of education and work linkages. The following paragraphs briefly outline examples of the effective practices for several of the principles. These practices are not prevalent in even ten percent of America's secondary schools. They are, however, prominent in at least a few school settings that have been documented and described in the literature. Some principles have corollaries at the elementary level or postsecondary and higher education level that are noted briefly. All of the foregoing practices have been recommended in at least two different studies or reports published for state or national dissemination.

Integration and Application of Knowledge

Numerous examples of new integration-focused initiatives have been cited in the literature over the past decade. The Foxfire experiment, which involved students in the publishing a series of literary pieces, is probably the most widely recognized. More recently, Grubb and his colleagues (1991) posited eight major models of academic-vocational education integration that have emerged in the past five years. These include: the occupational academy (school within a school) or magnet school, incorporating more academic content in vocational courses, making the academic curriculum more vocationally relevant, curriculum re-alignment (modifying both academic and vocational courses), team/collaborative teaching approaches, the senior project, occupational clusters and "career paths".

Many high schools have undertaken reform activities that involve some realignment and merger of the academic/general and vocational/specialized components of the curriculum. However, at this juncture relatively little is known about the impact of these integration efforts on student knowledge, retention rates, relevance for post-school achievement or employment, or general public or parental perceptions of schools.

In general, one of the primary hallmarks of a "break-the-mold" school will be its commitment to an "integration" construct which transcends all elements of the schooling design. Such constructs must also empower students, teachers, and

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- strengthening policies and programs required to maintain a world class workforce by addressing individual, economic, and societal needs;
- improving equity in work and education outcomes for individuals and special groups; and
- building the capacity for research-based practice and continuous quality improvement in education for work programs, especially among leaders.

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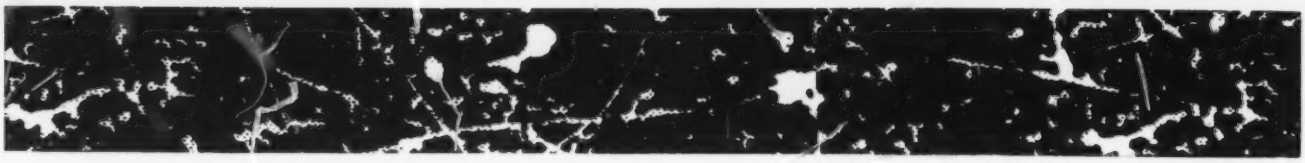


the local community with a useful paradigm for understanding the relationships among disciplinary knowledge, technology, work, family, citizenship, and other aspects of society.

Family and Peer Influence

Through Chapter 1 and other early intervention programs, the important role for parents and significant others in the schooling functions have been clearly documented. Middle and upper quartile SES families have a significant influence on the postsecondary plans of youth. Unfortunately, students from the other rapidly growing segment of the school-age population (i.e., those at-risk students from low-income, single parent, or limited English proficiency households) often lack parental role models who can provide appropriate direction and guidance.

Among the practices that schools have developed or considered are the following:

- Expanding cooperative programs between schools and social service programs (e.g., Learnfare and community-based programs for basic skills improvement);
- Using mentors/role models from the private sector to assist at-risk students;
- Developing support groups for parents whose children are preparing to transition from school to school or school to work;
- Developing concurrent parent-child education programs;
- Expanding occupational preparation programs for displaced homemakers and single teenage parents incorporating provisions for child care and transportation.

Continuous, Functional Context Learning

One of the major challenges confronting the educational enterprise is the removal of the discontinuities between learning in school and out of school (Resnick, 1987). Students will acquire a more functionally useful set of insights if: learning is based on collaborative rather than individual competition, pure mentation is replaced with applications of knowledge, manipulation of symbols in school is replaced with contextualized reasoning, and generalized learning is grounded in situation specific competencies.

Effective practices embracing this principle include:

- Placing students in supervised internships or field experiences in local businesses or governmental units for a substantial portion of time during high school and postsecondary programs;
- Requiring students to complete a research project examining a salient community issue as a graduation requirement;
- Developing a cadre of business personnel to work with teachers and students (particularly those at-risk) in mentoring, career planning and guidance, instruction in school, and experiential learning in the community.

Pluralism and Diversity

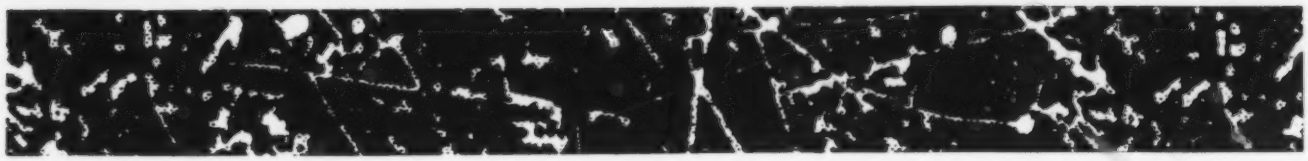
As the ethnic, social and economic composition of both the school-age population and the workforce becomes increasingly diverse, it is imperative that all educational institutions attend to this matter. A quality workforce is one that appreciates and thrives upon the unique contributions of all participants.

The world economy increasingly affects all forms of work. Students must develop insights regarding international labor economics, multicultural marketing, and the new importance of effective international relations. Economic and work concepts related to the global marketplace can be enhanced by:

- Having students study the international supplier and customer markets of selected local firms with particular attention to the language and cultural implications for local employees;
- Connecting classes of students in the U.S. and other countries via computer and telecommunication networks to jointly undertake projects;
- Linking foreign language, economics, and vocational-technical education courses through specific instructional activities;
- Expanding sister-city relationships with communities in other countries to include frequent educational exchanges. Such exchanges should enable all students to visit a foreign nation prior to graduation from high school or postsecondary programs and bring larger numbers of foreign students to the U.S. for high school studies.

A number of new practices must be considered by schools which address the issues of equity and diversity on the domestic scene as well. These include:

- Expanding the development of well-financed, career-oriented magnet schools;
- Engaging high school and postsecondary students in studies of income differences based on occupation, profession, gender, and educational attainment differences;
- Inviting local business leaders to discuss how their organizations are



addressing such critical issues as: affirmative action, discrimination and racism in the workplace, and developing respect and appreciation for individual and cultural differences;
• Providing students with the knowledge and skills to detect and respond appropriately to inequitable treatment in employment, social services, education, and other settings.

Effective Transitions

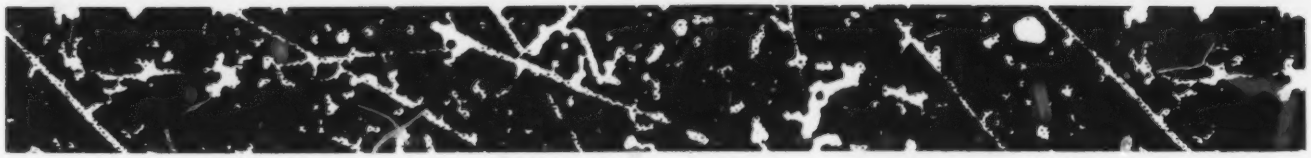
Several educational reform reports suggest that a growing portion of the nation's high school graduates are ill-prepared for participation in either college or the workplace. A recent poll conducted by Lou Harris and Associates (1991, September) indicates that both employers and college administrators find recent graduates to have borderline skills in: functional literacy, self expression, discipline in work habits, ability to solve complex problems, and basic functional skills. In short, in the view of employers and higher education administrators, recent graduates are only minimally prepared for work or the pursuit of higher education (p. 7). The lack of adequate preparation for life after high school results in significant transition difficulties for as many as half of the high school graduates annually (William T. Grant Foundation Commission on Work, Family and Citizenship, 1988). Often, these students drop out of college, move rapidly through minimum-wage jobs, and search for effective ways to contribute to society. These difficulties often have a significant negative impact upon the young person's self-concept and create unnecessary feelings of social and personal alienation.

Much of the current effective practice knowledge base comes from federal programs aimed at improving school-to-work transitions for special population youth. Among the strategies being developed and implemented are:
• Assuring that all students leaving high school participate in internships, field experiences, and/or cooperative education programs. These experiences often provide students with employment following high school;
• Developing computer-based, individualized employability development plans for all youth. These plans assure that students receive employability skills, career and educational counseling, and other competencies for making a successful transition to work or further schooling. These plans also serve as the vehicle for coordinating services among schools, job training and employment programs and human service agencies;
• Developing cooperative agreements with community/technical colleges, four-year institutions, and social service agencies to be certain that students: receive counseling, intake, and placement services to continue their education or gain employment and/or receive advanced placement or credit for postsecondary courses completed in high school;
• Developing scholarship and guaranteed employment programs with colleges and businesses for at-risk students who complete high school.

Learning at Work

As business organizations move toward high-performance work organizations (National Center on Education and the Economy, 1990) to enhance their productivity, most jobs will become learning-intensive. Employees will be required to spend more time learning while they are working. As front-line workers are given greater autonomy, they must learn new skills and knowledge to operate high technology equipment and engage in creative problem-solving with co-workers. The implications for schools and postsecondary institutions in this workplace trend are considerable. First, students, their parents, teachers and guidance counselors will have to understand more fully the work-related learning requirements associated with various professions and occupations. Second, schools must develop deeper insights into how various professionals, technicians, artists, and other workers actually go about learning while they are engaged in productive work.

To better understand learning-at-work expectations, innovative schools have undertaken the following practices:
• Developing adopt-a-school programs and other partnerships which allow for the frequent exchange of information among schools and business organizations without intruding on the educational agency's responsibility to educate students broadly;
• Matching each student with a career mentor and facilitating intensive studies of professions or occupational clusters by students in apprenticeship-like arrangements;
• Encouraging students to conduct interviews to examine the education and training requirements associated with occupations or professions of interest;
• Working closely with local colleges, universities, and major employers or trade associations to develop summer programs or student competitions (e.g., science and technology competitions or fairs) which acquaint students with career opportunities, educational requirements, and foundational knowledge required in specific fields.



The educational practices for implementing the remaining premises (career development, early intervention for special populations, and work-family considerations) are similar to those described above. Practices which individualize and contextualize learning, for instance, are also crucial for achieving equity for special groups and effectively planning career options.

Organizational and Management Premises

Principles 10-12 (pp. 1-2) present three essential elements supporting the curricular aspects of linking education and work. If educators are to be responsive to the rapidly changing technologies and innovations in the world of work as well as in education, they must understand how to use new research-based knowledge in their educational practices. As Atkin (1989) noted, it is imperative teachers be removed from the margins of educational research if the educational reform movement is to deliver on its promise of better schools. Equally important, the educational research community must focus more definitively on the issues of improving practice and student achievement. As Bernard Gifford has indicated, the profession sorely needs both "research-sensitive practice" and "practice-sensitive research" in order to build a capacity for quality improvement.

Effective patterns of collaborative leadership and comprehensive assessment strategies are also key elements in linking education and work. Local stakeholders such as business and community leaders, must be actively engaged in planning, implementing, and evaluating new initiatives. Target outcomes for students, both individual and district or institution wide, must form the basis for ultimately assessing the impact of these new educational designs. Only by understanding the impact of programs and services upon student achievement, motivation, and retention can educators determine what works for their clientele.

These premises are illustrated in the following practices:

- Developing teams of teacher-leaders to participate in leadership development programs. Teacher-leaders then facilitate inservice education and educational improvement programs;
- Establishing building-level professional resource/learning centers which provide resources to improve practice. Such centers would sponsor executives-on-loan from local business organizations and professional associations, and scholars-in-residence from nearby universities to assist the instructional staff in completing specific projects;
- Developing merit or incentive pay systems in collaboration with teacher organizations that reward teachers for engaging in leadership development and program improvement activities;
- Providing educators with released time to engage in professional and curriculum improvement projects;
- Sponsoring summer internship/advanced study opportunities for teachers, counselors and administrators to: view innovative schools, participate in consortiums of professionals working on educational improvement in specific areas (e.g., writing across the curriculum), undertake district-pertinent studies at the university, or study innovative practices in business, industrial, or service organizations;
- Developing five-year educational improvement plans for schools with targeted outcomes in line with the National Goals for Education and/or other community-validated outcomes. Issuing an annual "report card" on progress toward achieving the goals and outcomes;
- Engaging the educational community (all professional and support staff) in developing and using a system of performance indicators to monitor educational inputs, processes, and outcomes at the institution and program levels and reporting on the status of all indicators annually.

Organizational and Curricular Redesign Strategies

Any major educational redesign effort should include minimally the following three organizational and curricular arrangements:

- Provisions for curricular integrations at the secondary level which construct new arrangements for presenting math, science, technology, communications, social studies, business and economic studies, and family/consumer education to students. These integrated curriculums must be based on local analyses of what graduates should know and be able to do as they move into postsecondary education and work settings in the 21st century. The report of the Secretary's Commission on Achieving Necessary Skills (1991), issued by the U.S. Department of Labor, emphasizes five core competencies (effective resource utilization, interpersonal skills, information use, systems knowledge use, and technology use) and three foundational components (basic skills, thinking skills, and personal qualities);
- The high performance learning environments in which integrated knowledge is delivered must include heavy doses of experiential learning which emphasize creative, team-oriented problem solving and strategies used by various professionals

in producing knowledge. All students should be engaged in a series of supervised internships or field experiences where they work closely with adult mentors and role models, a semester-long community service project, and a comprehensive career investigation which produces for each student a realistic five-year career development plan.

• The high school settings must be linked formally and directly to both post-school education and work environments. The concepts and skills taught must be relevant to and seen clearly as prerequisites for further education and employment. The new design should provide students with advanced standing or college equivalent credit in local community or technical colleges or state universities. Those students opting for employment should exit school with additional occupational certificates or diploma endorsements developed by local or state-level business organizations which attest to the high-tech skills they have acquired. In some cases, students should qualify for both advanced placement and occupational endorsements. However, in no case would a student graduate from high school without meeting at least one of these two standards.

L. Allen Phelps is the Director of the Center on Education and Work and a Professor in the Departments of Educational Administration and Continuing and Vocational Education.

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